B-5010

Texas Agricultural Extension Service

SOUTH TEXAS RANGELANDS

South Texas Ranching – A Profile

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Introduction

Ranchers in South Texas and elsewhere are working to survive in an increasingly competitive and complex market. To remain successful, ranchers must have continual access to information on ever-improving production, marketing and management practices relevant to their unique set of ranching circumstances. Little of this type of information is currently available in an integrated, usable form for the specific economic, technical and social environment of South Texas ranchers.

In 1988, the Texas Agricultural Extension Service initiated an integrated resource management program called Comprehensive Ranch Management for Profit (CRMP) to provide information that ranchers need to help them remain competitive. The CRMP staff is a group of subject matter specialists in range, wildlife, livestock and agriculture economics-management; and county agents and their directors in Extension Districts 12 (South Texas), 13 (Southwest Texas) and 14 (Gulf Coast). For CRMP to effectively deliver the appropriate information, it was necessary to develop a clear understanding of the composition and structure of the South Texas ranching industry, current enterprises and enterprise combinations, as well as current production, management and marketing practices. Therefore, a mail survey of South Texas ranchers was conducted to obtain this background information and determine possible profit opportunities for ranchers in this region.

Survey questionnaires were mailed to 1,850 South Texas ranchers in 33 counties of the three Extension districts in January 1989 (Figure 1). These ranchers were randomly selected from lists on file with the Texas Beef Industry Council in Austin.

Each rancher received a four-page survey consisting of 21 questions concerning rancher background, income and ranch management practices related to livestock, wildlife, recreation and range management. A stamped,

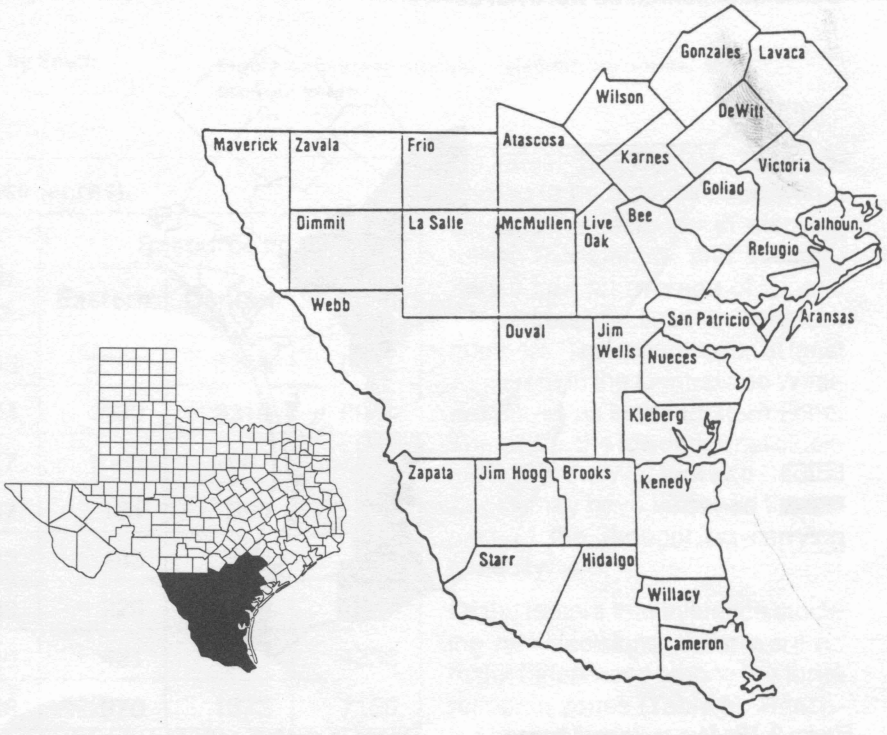

Figure 1. South Texas counties in the CRMP survey.

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self-addressed envelope was included. Each questionnaire was coded to provide confidential identification. This was used for follow-up mailings to non-respondents and allowed the CRMP staff to contact ranchers for the personal interviews.

The survey region was separated arbitrarily into three "resource zones" based upon differences in rainfall, vegetation and livestock rates. The three resource zones are referred to as the Western, Central and Eastern Zones (Figure 2). Similarities and differences among the regions, are highlighted, as well as possible reasons for such differences. For complete results or more information on the survey method, contact the authors at the Corpus Christi Research and Extension Center.

Results and Discussion

Of the 1,850 ranchers who received survey questionnaires, 1,012 (55 percent) responded. Some questionnaires were not usable because of rancher retirement, ranch sale, ranch location, occupational changes, livestock liquidation and other reasons. Approximately 800 were used in the analyses.

Demographic information obtained about South Texas ranchers indicates an average age of 58 years with 13 years of education; they have a cow herd size of 200 and own 2,290 acres (Table 1).

Table 1. South Texas rancher characteristics.

Characteristics	South Texas	Resource zone		
		Eastern	Central	Western
Age (years)	58	58	57	58
Acres owned	2290	1041	1442	6058
Acres leased	2394	992	1818	6376
Acres leased to others	993	200	450	2054
Education (years)	13	13	14	14
Number of cattle owned (head)	201	136	181	373

Some of these statistics, such as age and education, did not differ across the three districts or the three resource zones of the survey area. Other parameters, such as ranch and herd size and management practices, varied considerably from county to county. For example, the normal stocking rate for the 33-county region was 9.5 acres/animal unit (AU), and individual county averages ranged from 2.6 acres/AU to 23.2 acres/AU. Therefore, it is more meaningful to compare results by county and by similar resource areas (groups of counties with like resources).

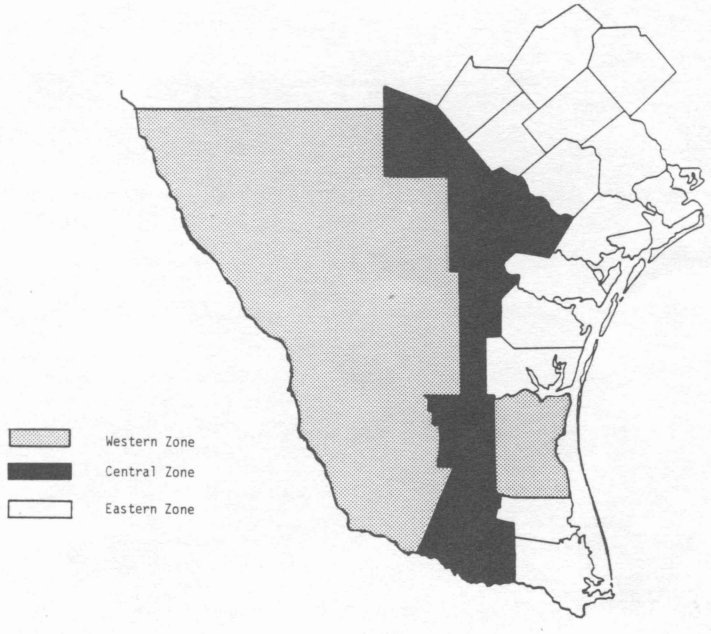

Figure 2. "Resource Zones" based on differences in rainfall, soils and vegetation.

Size and Scope of Ranching Operations

The differences in climate, soil and vegetation among the three resource zones directly influenced the size and kinds of ranching operations in each region. The survey results showed that ranch size increased from the northeast to the southwest (Eastern = 1,041 acres, Central = 1,442 acres, Western = 6,058 acres) (Table 1). The average number of cows owned in each resource zone parallels the increased ranch size (Eastern = 136, Central = 181, Western = 373 head) (Table 1). This region is primarily a beef cat-

tle production area: approximately 92 percent of the ranchers in each resource zone have cow-calf operations with only 10 to 15 percent grazing stocker cattle, primarily steers (Figure 3). Spanish goats are raised by less than 1 percent of the ranchers in the Eastern and Central Zones, but this increases to 4 percent in the Western Zone. A comparison of the acreage used in improved pasture, cleared range or brushy range (Table 2) indicates that the Eastern Zone has the highest amount (60 percent) of pasture land in brushy range compared with the Western (56 percent) and Central (51 percent) Zones. The highest percentage of cleared range is in the Western Zone (34 percent) followed by the Central and Eastern Zones (27 and 26 percent, respectively). The improved pasturelands in the Central, Eastern and Western Zones are 22, 14 and 10 percent respectively.

Range and Pasture Management

The normal stocking rates for the three resource zones are 6.8 acres/AU (Eastern), 9.1 acres/AU (Central) and 16.6 acres/AU (Western) (Figure 4). All regions of South Texas appeared to be significantly affected by the 1987-90 drought, which caused a dramatic decrease in stocking rates in 1988 across all resource zones compared with normal reported stocking rates. The Eastern Zone appeared to be most affected with a 35 percent decrease in stocking rates. The Central and Western Zones had an average of 21 and 19 percent declines in livestock numbers. The drought was at least as severe in the Central and Western Zones as in the Eastern Zone. Therefore, the lower normal stocking rate in the Western and Central Zones may have lessened the impact of the drought on carrying capacity.

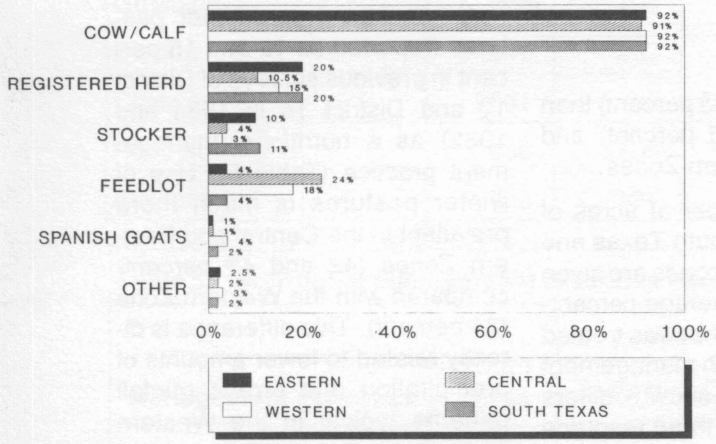

Figure 3. Livestock enterprises operated by South Texas ranchers.

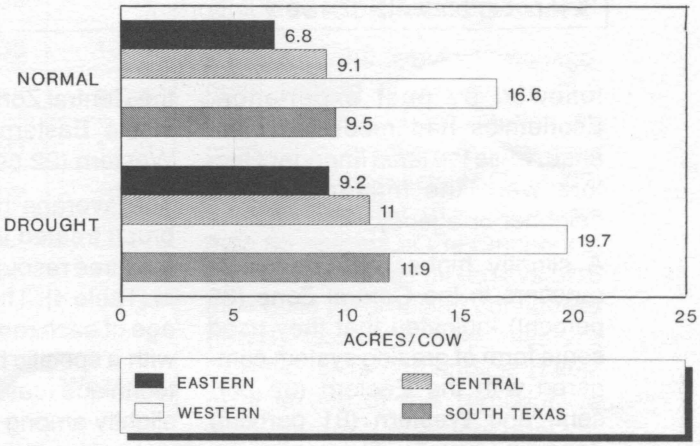

Figure 4. Average stocking rates during normal and drought years.

Table 2. Size and type of land use (acres).

Land Use	South Texas	Resource zone		
		Eastern	Central	Western
Deer lease	5168	2361	3251	8489
Quail lease	5694	4932	3319	6954
Livestock grazing	2817	1063	2007	7844
Recreation	2587	181	395	10,384
Crops	482	482	510	556
Improved pasture	538	226	589	1341
Cleared range	1240	421	714	4338
Brushy range	2638	970	1373	7150
Other	442	150	357	1600

Of the factors that influence stocking rate decisions, there were no major differences among the three resource zones (Table 3). Ranchers in each region rated range condition and forage quantity as the most important considerations,

Table 3. Factors influencing stocking rate decision.[1]				
Factor	South Texas	Resource zone		
		Eastern	Central	Western
Range condition	4.4	4.3	4.3	4.6
Forage quality	4.2	4.1	4.3	4.5
Past experience	4.0	3.9	4.1	4.2
Economics	3.2	3.0	3.3	3.3
Agency recommendation	2.1	2.1	2.2	2.3
Neighbor	1.6	1.5	1.7	1.8
[1]1 = not important; 5 = very important.				

followed by past experience. Economics had moderate influence, while the least important factors were the influences of a neighbor or agency.

A slightly higher percentage of ranchers in the Central Zone (88 percent) indicated that they used some form of grazing system compared with the Eastern (82 percent) and Western (81 percent) Zones (Figure 5). There were no differences among the three zones in the percentage of ranchers using short duration or continuous grazing. However, the number of ranchers using a four pasture, one-herd system was greater in the Central Zone (33 percent) than in the Eastern (26 percent) and Western (22 percent) Zones.

The average number of acres of brush treated in South Texas and the three resource zones are given in (Table 4). The average percentage of each ranch that was treated with a specific brush management technique (data not shown), differs slightly among the three resource zones in prescribed burning, roller chopping, discing, chaining or bulldozing to reduce brush cover. Grubbing (12.5 percent) and aerial herbicide treatments (15 percent) were slightly more popular on ranches in the Central Zone, while ranches in the Western Zone rootplowed an average of 17 percent of their acreage compared with 7 percent in the Eastern Zone. Shredding (52 and 54 percent) and soil-applied herbicides (16 to 23 percent) were among the most common brush management practices used in the Central and Eastern zones. These differences in brush management practices are affected by ranch size, rainfall and previous brush management strategy.

More than 38 percent of ranchers in South Texas use winter pastures (reported as 12 and 18 percent in previous surveys of District 12 and District 14 in 1984 and 1982) as a nutritional management practice (Table 5). Use of winter pastures is much more prevalent in the Central and Eastern Zones (42 and 43 percent) compared with the Western Zone (24 percent). This difference is directly related to lower amounts of precipitation and erratic rainfall patterns typical in the Western Zone. One unique nutritional management practice that has been utilized by many South Texas ranchers for decades is burning prickly pear cactus. Burned pear, combined with a protein supplement and hay, provides an ade-

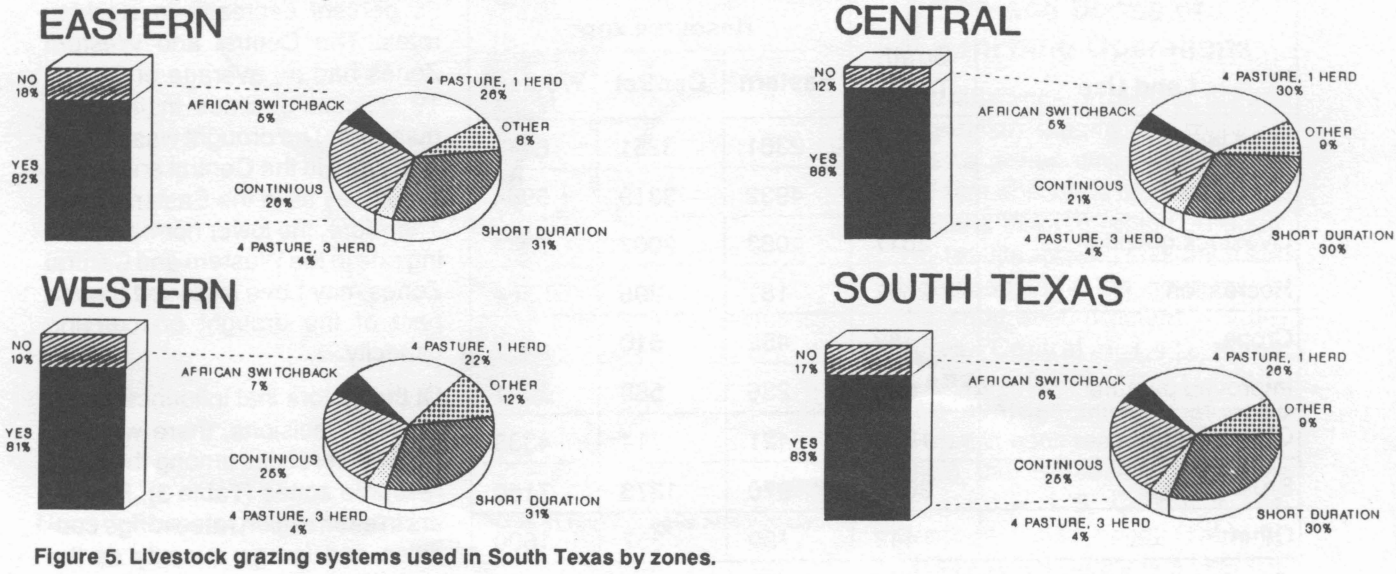

Figure 5. Livestock grazing systems used in South Texas by zones.

Table 4. Average number of acres of brush treated in last 10 years.

Method	South Texas	Resource zone		
		Eastern	Central	Western
Prescribed burning	2697	2289	310	5553
Aerial herbicide	1665	421	851	3447
Soil applied herbicide	536	367	1070	371
Shredding	1039	730	1616	1410
Roller chopping	3558	4999	549	5333
Grubbing	275	195	353	394
Discing	540	253	468	1064
Chaining	2861	100	1975	5339
Root-plowing	836	406	693	1359
Bulldozing	725	194	902	2903

Table 5. Nutritional management practices used (%).[1]

Management Practices	South Texas	Resource zone		
		Eastern	Central	Western
Supplemental feed	81 (.52)	83 (.54)	75 (.35)	82 (.62)
Mineral supplement	67 (.23)	68 (.21)	69 (.20)	64 (.31)
Hay	85 (.70)	92 (.61)	86 (.89)	65 (.68)
Winter pasture	38 (.64)	43 (.67)	42 (.51)	24 (.71)
Prickly pear	18 (.39)	7 (.65)	22 (.35)	40 (.30)

[1]Cost ($/head/day).

Table 6. Reproduction management practices used (%).

Management practices	South Texas	Resource zone		
		Eastern	Central	Western
Pregnancy determination	46	45	52	41
Fertility test bulls	65	66	66	65
Specific calving season	46	43	48	48
Artificial insemination	12	13	13	8
Body condition scoring	12	13	14	8
Estrus synchronization	7	7	7	6

quate maintenance ration for dry cows during drought. Such supplemental feeding techniques are a common practice in the Western Zone (40 percent) compared with the Central (22 percent) and Eastern Zones (7 percent). The primary reason for this difference is that droughts are more frequent in the Western Zone resulting in shortages of forage. Another reason is that prickly pear decreases in abundance from the Western to the Eastern Zone.

Livestock Management

Results of the livestock management section of the survey produced important information on production, nutrition, reproduction and marketing practices (Tables 5, 6, 7 and 8). For example, more than 65 percent of the ranchers in each South Texas region evaluate their bulls for breeding soundness (fertility tested) to help ensure a high-calf crop percentage (Table 6). The use of this reproductive management practice has improved from that reported in earlier surveys in 1982 (56 percent) and 1984 (47 percent). Continued emphasis through Extension programming should help expand the use of this management tool. Forty-six percent of the ranchers in South Texas pregnancy test in their cow herd, which is an increase in testing from the 23 percent and 29 percent reported from earlier surveys. This figure is lowest in the Western Zone (41 percent), which can probably be attributed to the increased difficulties involved with working cattle on larger, more extensive operations.

Forty-six percent of the ranchers surveyed reported that they had a specific calving season, and more ranchers in the Western and Central Zones have a calving season (48 percent for both) than ranchers in the Eastern Zone (43 percent). This is an increase from the 26 and

31 percent reported in the 1984 and 1982 surveys, respectively. Other reproductive management practices reported include artificial insemination (12 percent), body condition scoring of cows (12 percent) and estrus (heat) synchronization (7 percent). These percentages are up slightly from those reported in earlier surveys with the exception of body condition score, which has doubled from the 7 percent reported in 1984. More ranchers in the Eastern and Central Zones use these practices compared with those in the Western Zone for the same reasons previously mentioned.

Animal and herd health management practices (Table 7) declined slightly compared with the earlier surveys, which indicates a drought situation such as in 1988. These are often the first practices to be stopped or reduced during drought to compensate for the increase in supplemental feed costs. Only 77 percent of the ranchers in the South Texas region have a herd health vaccination program, which is lower than the 81 and 82 percent reported in the earlier surveys that vaccinated their calves for blackleg. The number of ranches using external parasite control has decreased to 71 percent from 87 and 76 percent reported in earlier surveys in 1982 and 1984. Internal parasite control increased slightly to 66 percent compared with 40 and 61 percent reported in 1982 and 1984, respectively. As one might expect, internal and external parasite control is more common in the higher rainfall areas (Eastern and Central) (70 and 74, and 72 and 78 percent, respectively) than in the Western Zone (54 and 59 percent, respectively). Overall, most ranchers know that herd health management practices should be applied annually and sometimes monthly for the control of diseases and parasites during the lifetime of the animal. The use of these and other management practices should not be reduced during a drought, especially a prolonged one, because the cattle remaining in the herd are typically the most productive or genetically superior.

Forty-six and 31 percent of the ranchers reported that they castrate and dehorn calves; more ranchers (49 percent) in the Eastern Zone castrate and more ranchers in the Central and Western Zones dehorn. These percentages are similar to previous survey results for the South Texas area.

Thirteen percent of the survey respondents reported implanting heifer calves to increase growth rate of replacement heifers. Fourteen percent of both the Eastern and Western Zone ranchers implant their heifers compared with only 10 percent in the Central Zone.

Implanting stocker steers is done by one in five (20 percent) South Texas ranchers, and more (22 percent) implanting of steers is being done in the Eastern compared with the Central (15 percent) or Western (19 percent) Zones. This is a significant increase in implant use in stockers from that reported in 1982 and 1984 (10 percent for both surveys).

Only 13 percent of the ranchers surveyed said they collected and adjusted calf weaning weights, which reflects a lack of emphasis on production records and performance testing. However, this does represent an increase in use of records by nearly 100 percent from the 6 and 7 percent reported in 1982 and 1984, respectively.

Marketing techniques (Table 8) have changed somewhat for cattle producers since the 1982 and 1984 surveys of this area. The percentage of ranchers who sell on the ranch has more than doubled from 9 and 13 percent who used direct sales contracts in 1982 and 1984, respectively, to 27 percent in 1988. This marketing method is less popular in the Eastern Zone (22 percent) than in the Central and Western Zones (34 and 35 percent). However, the numbers of ranchers who market their cattle through the local auction barn (94 percent) is relatively unchanged from previous surveys (93 and 95 percent, respectively). Less common methods of selling cattle include direct sale to a local packing

Table 7. Production management practices used (%).

Management practices	South Texas	Resource zone		
		Eastern	Central	Western
Vaccination program	78	74	86	81
Internal parasite control	66	70	72	54
External parasite control	71	74	78	59
Castrate calves	46	49	41	44
Dehorn calves	31	28	35	36
Implant replacement heifers	13	14	10	14
Implant stocker steers	20	22	15	19
Adjust weaning weights	13	13	14	11

Table 8. Marketing and pricing methods used (%).

Method	South Texas	Resource zone		
		Eastern	Central	Western
On-ranch sale	27	22	34	35
Auction barn	94	95	93	90
Packer	6	5	6	10
Video	2	2	2	3
Computer listing service	0	1	0	1
Futures/options	2	2	3	2
Market report service	9	9	8	12
Other	4	3	6	4

operation (6 percent) and video marketing (2.5 percent). Only 9 percent report using a market reporting service, and only 2 percent use the futures market. This indicates a need for increased educational emphasis on futures and options and a need for producers to become more aware of market conditions. Only 1 of 10 ranchers receive any type of market report.

Wildlife and Recreation Management

Across the South Texas region, 28 percent of the ranchers reported they lease their land for hunting (Table 9). However, the percentage of ranches that lease for hunting varied widly among the three resource zones. More than 52 percent of ranchers in the Western Zone lease for hunting, compared with 26 percent in the Central Zone and only 19 percent in the Eastern Zone. A likely reason for the contrast is a greater abundance of wildlife habitat (brush) and a greater number of game animals such as quail and deer in the West compared with the East. The smaller landholdings in the Central and Eastern Zones are more likely to be used for family recreation than are larger landholdings in the Western Zone. Of the 28 percent of the ranchers who lease for hunting, season leases were by far the most common (87 percent), followed by package hunts (13 percent) and day leases (9 percent). This may be because season leases, although usually less profitable than the latter two types of hunting, require the least input by the landowner. This trend holds for all ranchers (both leasing and nonleasing) across all resource zones.

Table 9. Ranch leased for hunting or fishing and type of lease (%).

Leased for	South Texas	Resource zone		
		Eastern	Central	Western
Hunting	28	19	26	52
Fishing	4	3	1	10
Type of lease				
Day	2	2	4	3
Season	24	15	23	46
Package hunt	4	3	2	6
Secondary	0	0	0	0
Other	1	0	1	2

The four major wildlife species that are hunted in the South Texas region are white-tail deer, bobwhite quail, morning dove and white-winged dove (Table 10). Deer are hunted more often than any other species in the Eastern (62 percent) and Western Zones (82 percent). Dove hunting is more popular in the Central Zone (70 percent), followed by deer (63 percent) and quail (63 percent) hunting. Javelina (58 percent) and feral hogs (50 percent) are important game species in the Western region.

Whether or not ranchers lease for hunting, many apply management practices to improve wildlife in their operations. The most important management practices in the Western Zone are maintaining harvest records (50 percent) and brush management to enhance wildlife habitat (49 percent) (Table 11). Supplemental feeding, wildlife watering facilities, population surveys and harvest quotas are also important in this region. In the Central Zone, supplemental feeding (44 percent) is the most common management practice,

Table 10. Wildlife species hunted or caught (%).				
Species	South Texas	Resource zone		
		Eastern	Central	Western
Deer	68	62	63	82
Quail	54	38	63	75
Dove	60	55	70	61
Turkey	27	28	26	24
Javelina	30	13	36	58
Feral hogs	30	17	38	50
Exotics	1	1	1	2
Bass	21	22	18	22
Catfish	26	30	19	21
Other	3	4	1	3

Table 11. Wildlife management practices used (%).				
Management practices	South Texas	Resource zone		
		Eastern	Central	Western
Harvest records	30	20	25	50
Wildlife surveys	16	5	17	34
Harvest quotas	21	12	23	32
High fence	5	1	7	11
Supplemental feeding	34	29	44	38
Watering facilities	28	24	31	35
Brush management	32	24	30	49
Prescribed burning	6	5	4	9
Food plots	19	15	23	19
Discing	14	9	19	20
Other	1	1	3	1

followed by wildlife watering facilities (31 percent) and brush management (30 percent). Wildlife management does not seem to be a high priority in the Eastern Zone. The most common management practice was supplemental feeding (29 percent), followed to a lesser degree by brush management (24 percent), water facilities (24 percent) and harvest records (20 percent).

Several recreational enterprises other than hunting were considered important on some South Texas ranches (Table 12). Nature photography (19 percent), camping (12 percent) and artifact collecting (10 percent) were additional sources of income for some ranchers in the Western Zone. Nature photography (21 percent), camping (19 percent) and bird-watching (16 percent) were important recreation enterprises in the Central Zone, while camping (15 percent), bird watching (11 percent) and nature photography (8 percent) were the most common enterprises in the Eastern Zone.

Financial Management

Questions about computer use and income revealed some interesting patterns of recordkeeping and financial management by South Texas ranchers. The survey indicated that 21 percent of the ranchers own a computer but only 12 percent (55 percent of those owning them) use them in their ranch business (Figure 6). Ranchers in the Western Zone reported the highest computer use in the ranch business (16 percent), while Eastern Zone ranchers used computers the least (10 percent). This difference is related to the increased need for computerized recordkeeping systems on the larger ranch operations in the Western Zone. The data show a need for more educational efforts in computer use and its impact on ranch management decisions.

Sixty-seven percent of the ranchers surveyed use a profit and loss statement, 27 percent use a balance sheet and 32 percent use a cash flow statement, as financial management tools (Table 13). This pattern was similar across all the resource zones of South Texas. The operating statement is relatively popular because it is

Table 12. Type of recreation enterprise on ranch (%).				
Enterprise	South Texas	Resource zone		
		Eastern	Central	Western
Artifacts	3	0	4	10
Rock collecting	5	4	7	6
Nature photography	13	8	21	19
Camping	15	15	19	12
Birdwatching	11	11	16	6
Other	3	4	3	1

used to produce the Schedule F for tax purposes. The balance sheet and cash flow statements are probably used for loan documentation purposes. Fortunately, many ranchers realize the importance of financial management in ranching survivability and profitability. This is definitely an area where increased educational emphasis could greatly benefit ranch efficiency.

The percentage of total income that is derived from the ranch business is similar across all regions of South Texas (Figure 7). The percentage of income from the ranch business ranges from a low of 39 percent in the Central Zone to a

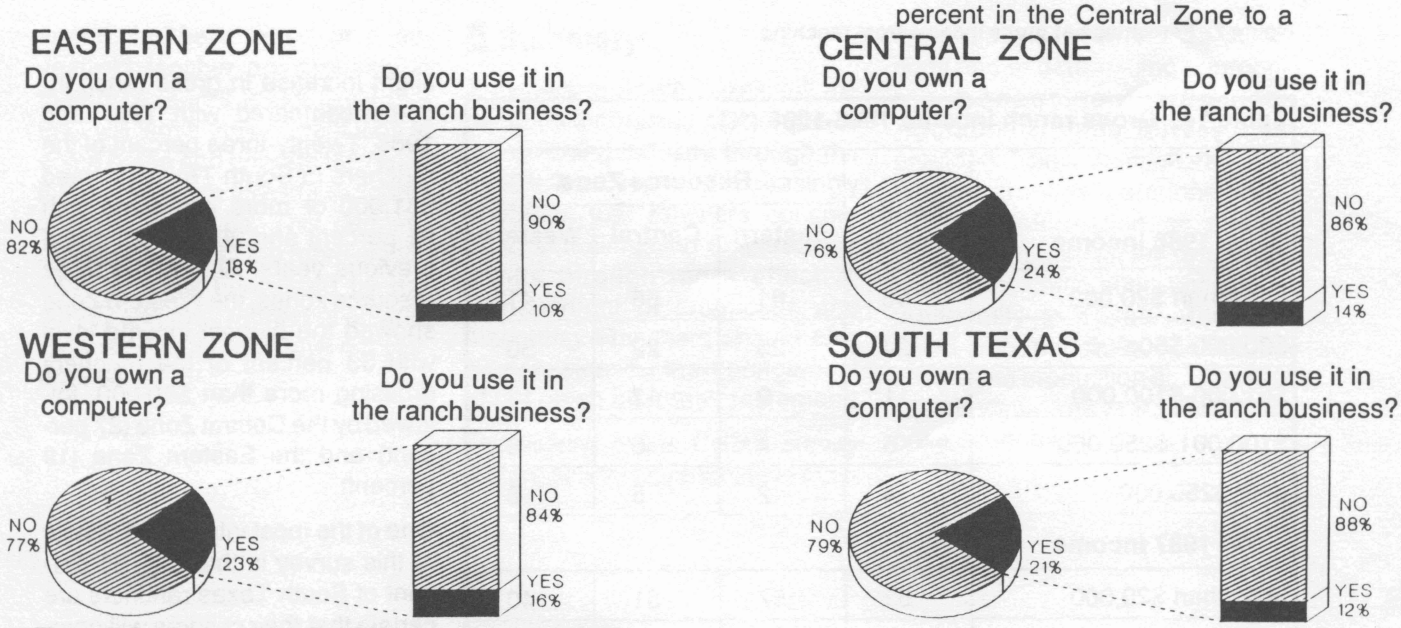

Figure 6. Computer use by South Texas ranchers by zones.

Table 13. Financial statements used (%).				
Statement	South Texas	Resource zone		
		Eastern	Central	Western
Balance sheet (net worth)	27	21	37	33
Profit and loss (operating statement)	67	66	68	67
Monthly cash flow	32	31	34	33

high of 47 percent in the Western Zone. Only 13 percent of the ranchers in South Texas derive 100 percent of their income from the ranch business. This value is lowest in the Central Zone (10 percent) and highest in the Western Zone (17 percent). These numbers indicate that non-ranch income is extremely important to South Texas producers.

Nearly 77 percent of the respondents had a gross income in 1988 that was less than $50,000 (Table 14). Ranchers in 1988 reported a

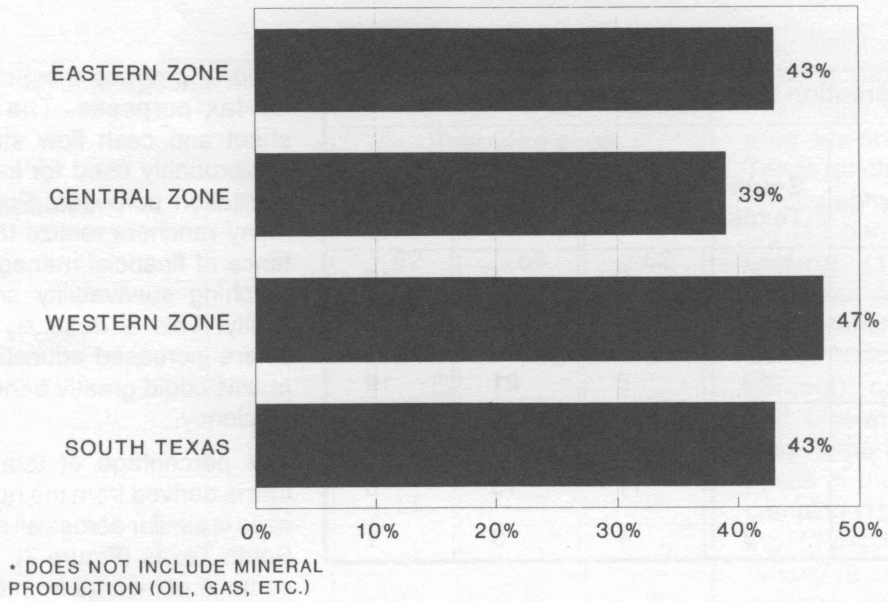

Figure 7. Percentage of gross income from ranching.

Table 14. Gross ranch income 1986-1988 (%).

1986 Income	South Texas	Resource Zone		
		Eastern	Central	Western
Less than $20,000	56	61	55	41
$20,000-$50,000	24	25	22	30
$51,000-$100,000	11	9	12	13
$100,001-$250,000	5	4	6	8
over $250,000	4	2	5	8
1987 Income				
Less than $20,000	52	57	51	40
$20,000-$50,000	24	25	22	30
$51,000-$100,000	11	9	12	13
$100,001-$250,000	6	4	9	8
over $250,000	4	2	5	8
1988 Income				
Less than $20,000	49	53	50	37
$20,000-$50,000	28	29	24	31
$51,000-$100,000	12	11	12	16
$100,001-$250,000	7	5	9	9
over $250,000	4	3	6	8

slight increase in gross ranch income compared with 1987 and 1986. Twenty-three percent of the ranchers in South Texas grossed $51,000 or more compared with 21 percent and 20 percent in the previous years. Among the three resource zones, the Western Zone showed the highest income level with 33 percent of the ranchers grossing more than $50,000, followed by the Central Zone (27 percent) and the Eastern Zone (19 percent).

One of the most interesting results of this survey is that only 35 percent of South Texas ranchers are certain that their children will operate the ranch when the rancher retires (Figure 8). Two-thirds (65 percent) believe that their children will not take over the ranch, or they are uncertain about the future of the ranch operation. This number is lowest in the Western Zone (57 percent) and highest in the Eastern Zone (68 percent) and parallels ranch and herd size and gross ranch income levels across zones. Since the average age of South Texas ranchers is 58 years of age, they probably have less than 10 years to plan for retirement and for transfer of their ranch to new man-

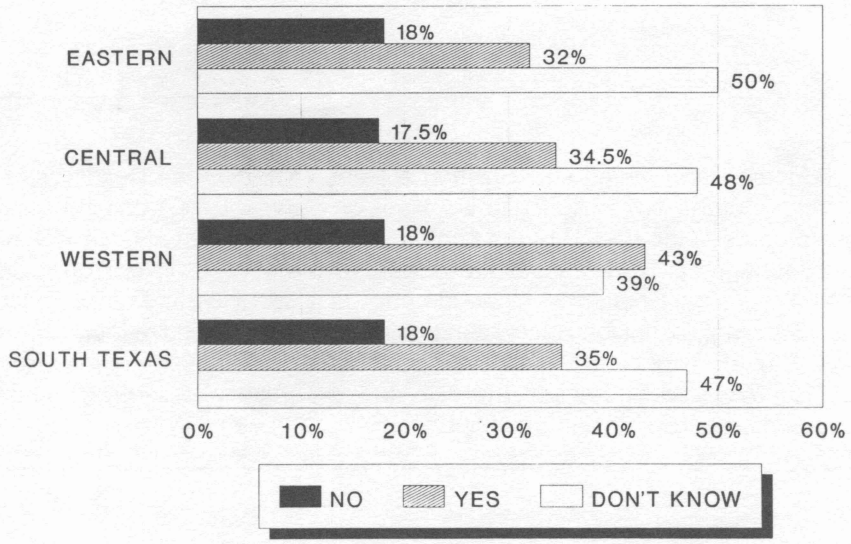

Figure 8. The future of the ranch: Will children take over?

agement. The children of a 58-year-old rancher are probably in their 30's, and it is not likely that they will leave their current jobs to come home and operate the ranch if they have not already indicated a desire to do so. This certainly represents one of the more significant statistics uncovered by this survey and may represent an area Extension programs have not covered well.

Summary

Ranchers in South Texas will experience increasing challenges in the ranching industry through the 1990's. It is becoming increasingly important that ranchers concentrate on maintaining or increasing profits through more effective management of production and marketing. Ranchers should also prepare plans for the management of the ranch after their retirement.

The results of the CRMP survey are applicable for ranchers in making decisions on enterprise selections and in determining appropriate management practices. Additionally, this survey has provided Texas Agricultural Extension Service personnel with valuable information on educational programs that are needed to support ranching survivability and profitability in Texas. More detailed information is needed on successful production and marketing techniques as well as on enterprise economics.

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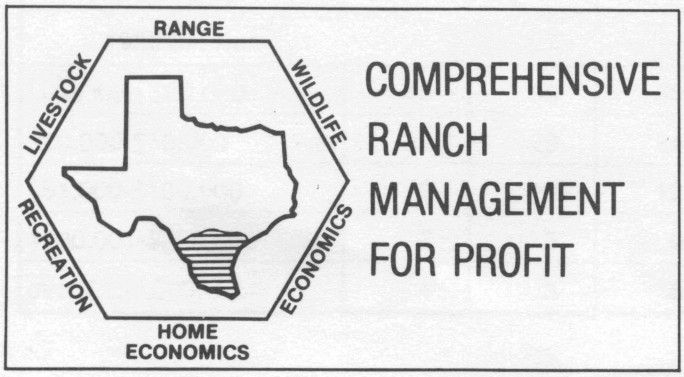

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